

$$23) \frac{x^2 - 5x + 6}{x + 3} < 0$$

$$\frac{(x-3)(x-2)}{x+3} = 0$$

solution set

$$(-\infty, -3) \cup (2, 3)$$

$$x > -3 \text{ or } 2 < x < 3$$

interval	test	P or n
$(-\infty, -3)$	-4	$\frac{(-7)(-6)}{(-1)} = \frac{+42}{-1} = -42$ negative
$(-3, 2)$	0	$\frac{(-3)(-2)}{(3)} = \frac{6}{3} = 2$ positive
$(2, 3)$	2.5	$\frac{(-.5)(+.5)}{(5.5)} = \frac{-2.5}{5.5} = \frac{-5}{11}$ negative
$(3, \infty)$	4	$\frac{(1)(2)}{(7)} = \frac{2}{7}$ positive

Solve the following equations.

$$24) \sqrt{x+2} - 1 = x+1$$

$$\sqrt{-1+2} - 1 = -1+1$$

$$\sqrt{1} - 1 = 0$$

$$1-1=0$$

$$0=0$$

$$x = -1 \text{ works}$$

$$\begin{aligned} \sqrt{x+2} - 1 &= x+1 \\ +1 &+1 \\ (\sqrt{x+2})^2 &= (x+2)^2 \\ x+2 &= (x+2)(x+2) \\ x+2 &= x^2 + 4x + 4 \\ -x-2 &-x-2 \end{aligned}$$

$$0 = x^2 + 3x + 2$$

$$0 = (x+1)(x+2)$$

$$x = -1 \text{ or } x = -2$$

$$\sqrt{-2+2} - 1 = -2+1$$

$$0-1=-1$$

$$-1=-1$$

$$x = -2 \text{ works}$$

$$25) \frac{x+5}{x-2} = 16$$

$$\frac{(x+5)}{(x-2)} = 16 \cdot (x-2)$$

$$x+5 = 16x-32$$

$$-5 \quad -5$$

$$x = 16x-37$$

$$-16x \quad -16x$$

$$-15x = -37$$

$$-15 \quad -15$$

$$x = \frac{37}{15}$$